

Report Documentation Page			Form Approved OMB No. 0704-0188		
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE MAY 2012		2. REPORT TYPE		3. DATES COVERED 00-00-2012 to 00-00-2012	
4. TITLE AND SUBTITLE Quadrivalent Human Papillomavirus Vaccine Initiation, Coverage, and Compliance Among U.S. Active Component Service Women, 2006-2011				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Armed Forces Health Surveillance Center, 11800 Tech Road, Suite 220 (MCAF-CS), Silver Spring, MD, 20904				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES MSMR Vol. 19 No. 5 May 2012, See also ADA562490					
14. ABSTRACT human papillomavirus (HPV) is the most common sexually transmitted pathogen detected among U.S. service members. An estimated 169,682 incident diagnoses of HPV infection occurred between 2004-2009 among active component U.S. service members (rate of 2,306 cases per 100,000 person-years). 1 In 2006, a 3-dose HPV quadrivalent vaccine (HPV4), which protects against common HPV strains (types 6, 11, 16, 18) responsible for about 70 percent of cervical cancers and 80 percent of genital warts was licensed in the United States. 2 Consistent with the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) recommendations the Department of Defense (DoD) has made the HPV4 vaccine available to all eligible service members aged 17-26 years. The ACIP has recommended administration of the second dose of vaccine 2 months after the first dose and the third dose at six months after the first dose. 3					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Quadrivalent Human Papillomavirus Vaccine Initiation, Coverage, and Compliance Among U.S. Active Component Service Women, 2006-2011

Hala Maktabi, PhD, MPH; Sharon L. Ludwig, MD, MPH, MA (CAPT, U.S. Coast Guard); Angelia Eick-Cost, PhD, ScM; Uma D. Yerubandi, MS; Joel C. Gaydos, MD, MPH

Human papillomavirus (HPV) is the most common sexually transmitted pathogen detected among U.S. service members. An estimated 169,682 incident diagnoses of HPV infection occurred between 2004-2009 among active component U.S. service members (rate of 2,306 cases per 100,000 person-years).¹ In 2006, a 3-dose HPV quadrivalent vaccine (HPV4), which protects against common HPV strains (types 6, 11, 16, 18) responsible for about 70 percent of cervical cancers and 80 percent of genital warts, was licensed in the United States.² Consistent with the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP) recommendations, the Department of Defense (DoD) has made the HPV4 vaccine available to all eligible service members aged 17-26 years. The ACIP has recommended administration of the second dose of vaccine 2 months after the first dose and the third dose at six months after the first dose.³

Despite vaccine availability, utilization of the HPV4 vaccine by active component U.S. service women has been reported to be low. For example, at Womack Army Medical Center in Fort Bragg, North Carolina, 15 percent of eligible service women initiated the series; of these, only 37.4 percent completed the 3-dose series.⁴ At the Naval Medical Center San Diego, the 3-dose completion rates were lower among active duty women than other beneficiaries, averaging 16 percent.⁵ This brief report quantifies HPV4 vaccine immunization rates in eligible women in U.S. military service. (The results were presented in part at the International Conference on Emerging Infectious Diseases in Atlanta, Georgia in 2012.)

The Defense Medical Surveillance System was used to identify active component service women in the Army, Air Force, Navy, Marine Corps, and Coast Guard

TABLE. Initiation, coverage, and compliance rates of HPV4 vaccination among female service members, active component, U.S. Armed Forces, 2006-2011

	No. vaccinated	Population ^a	% total
Initiation rates	60,807	270,257	22.5
Coverage rates			
1 dose	16,507	51,924	31.8
2 doses	11,802	51,924	22.7
3 doses	23,615	51,924	45.5
Compliant by 6 months ^b	7,826	51,924	15.1
Compliant by 1 year ^c	14,964	46,373	32.3

^aEligible population is time-dependent

^bPer recommendations of ACIP³

^cPer vaccine prescribing information²

eligible for the HPV4 vaccine during the interval 2006-2011. Records of administration of the HPV4 vaccine were obtained from the immunization data base of the Defense Enrollment Eligibility Reporting System (DEERS). From January 2006 to June 2011, of the 270,257 service women who were in the eligible age range for the HPV4 vaccine, 60,807 (22.5%) received at least one HPV4 dose (Table). Of the 51,924 women who remained in the active component for 6 months or more following their first dose, 16,507 (31.8%) received only 1 dose, 11,802 (22.7%) received only 2 doses, and 23,615 (45.5%) completed the recommended three doses. At the six month target date, 15.1 percent of those initiating the series and still on active service completed the series. Of the 44,062 women who did not receive 3 HPV4 doses within the recommended 6 months, 16.1 percent (7,102) completed the series within 1 year; thus, the one year compliance was 32.3 percent. The median times between the first and second, and first and third doses were 3 months and 8 months, respectively.

In theory, proper timing of the complete series of HPV4 vaccinations is necessary to achieve immunologic protection. The low initiation and series completion rates of HPV4 vaccine in service women

is concerning. Increased education of service women and providers on vaccine benefits may increase coverage, enhance series completion, and extend protection against HPV infection and its clinical effects.

Author affiliations: Henry M. Jackson Foundation, Bethesda, MD (Drs. Maktabi, Eick-Cost, Gaydos, Ms. Yerubandi). Armed Forces Health Surveillance Center (Drs. Maktabi, Ludwig, Eick-Cost, Gaydos; Ms. Yerubandi).

REFERENCES

1. Armed Forces Health Surveillance Center. Sexually transmitted infections, U.S. Armed Forces, 2004-2009. *MSMR*. 2010;17(8):2-10.
2. Gardasil [package insert] 9682302RR-2. Whitehouse Station, NJ: Merck and Co Inc; 2006.
3. Centers for Disease Control and Prevention. FDA licensure of bivalent human papillomavirus vaccine (HPV2, Cervarix) for use in females and updated HPV vaccination recommendations from the Advisory Committee on Immunization Practices (ACIP). *MMWR*. May 28, 2010;59(20):626-629.
4. LaRocquel JD, Berry-Cabán CS. Human papillomavirus vaccination coverage among soldiers in a military treatment facility, 2007-2010. *J Vaccines Vaccin*. 2011;2:1.
5. Shen-Gunther J, Shank JJ, Ta V. Gardasil™ HPV vaccination: surveillance of vaccine usage and adherence in a military population. *Gynecol Oncol*. 2011 Nov;123(2):272-277. Epub 2011 Aug 24.